

BENCHMARKS

VOLUME 6 NUMBER 2 NORTH TEXAS STATE UNIVERSITY FEBRUARY 1985

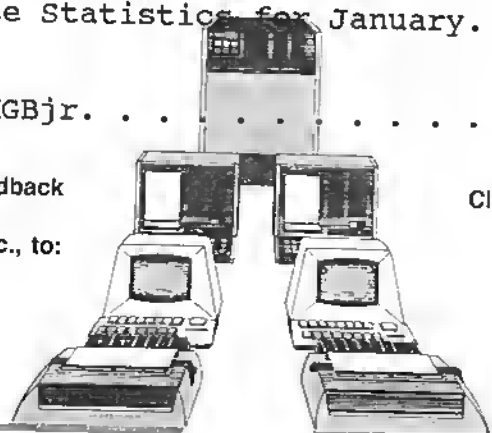
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BENCHMARKS Reader/User feedback is encouraged.

Send all letters, suggestions, etc., to:
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Services Available to Users of the NTSU Computing Facilities

The NTSU Computing Center is located in the Information Sciences Building, Room 119. Telephone: (817) 565-2324. HELP DESK phone: 565-4050.

INFORMATION AND ID CODES - Carolyn Goodman

BENCHMARKS QUESTIONS/CONTRIBUTIONS, ETC. - Claudia Lynch

STATISTICAL/RESEARCH SUPPORT - George Morrow, Scott Barber,
Claudia Lynch, Dave Molta, Panu
Sittiwong

STUDENT PROGRAMMING PROBLEMS - CSCI Department, Room 542A, GAB
BCIS Department, Room 152, BA

JCL PROBLEMS - Help Desk

PRE-RESEARCH COUNSELING - George Morrow, Scott Barber, Dave Molta,
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DATA ENTRY & KEYPUNCH - Betty Grise

TEST SCORING & ANALYSIS - Betty Grise

DISK SPACE PROBLEMS - Carolyn Goodman

PASSWORD AND OPERATING SYSTEM PROBLEMS - Help Desk

ADMINISTRATIVE APPLICATIONS - Coy Hoggard

COMMUNICATION/TERMINAL PROBLEMS - Help Desk

PRINTOUT RETRIEVAL - RJE Operators

Spring Computing Hours

Computing facilities will be open during the following hours throughout the Spring Semester (not applicable to holidays):

Computing Center RJE: 7 a.m. Monday - Midnight Saturday
Sunday, Noon - Midnight

ISB 110 Terminal Area: Monday - Thursday, 7:30 a.m. - Midnight
Friday, 7:30 a.m. - 6 p.m.
Saturday, 9:00 a.m. - 7 p.m.
Sunday, 2 p.m. - 10 p.m.

College of Business: Monday - Thursday, 8:15 - Midnight
Friday, 8:15 - 8 p.m.
Saturday, Sunday, 12:15 p.m. - Midnight
Saturday, CLOSED

Room 550C, GAB: Sunday, 2 p.m. - 11 p.m.
Monday - Thursday, 8 a.m. - Midnight
Friday, 8 a.m. - 8 p.m.

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*   P R O C E D U R E S ,
*   A N D   O T H E R
*   I M P O R T A N T
*   S T U F F
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Exceptions to Scheduled Hours for GAB 550C

Due to limited space, the entire schedule for GAB 550C could not be printed on the previous page. Following are some exceptions to the preceding reported hours:

<u>Days</u>	<u>Dates</u>	<u>Status</u>
Sunday	March 17	CLOSED
Monday -	May 6-9	OPEN 8 am - 10 pm
Thursday	March 18-21	OPEN 11 am - 8 pm
Friday	March 15, May 10	OPEN 8 am - 5 pm
	March 22	OPEN 11 am - 5 pm
Saturday	March 3, April 28	OPEN Noon - 8 pm

Consulting On Pirated Software

It is the policy of the Computing Center that no consulting will be done with users on microcomputer software that we know or have reason to believe is pirated. "Pirated" means that the software is being used in violation of the license agreement with the company that produced the software. So ... if you copy someone else's software and can't run it on your micro, don't come to us. Unless, of course, you like the feeling of terminal embarrassment.

Computing Center Offers Free Software

Being the user-friendly folks that we are, the Computing Center is currently offering free microcomputer software for people who have TI PC's and/or other micros which run MS/DOS. All you have to do to get this software is bring some 5 1/4 inch diskettes that have been formatted using the /S parameter on MS/DOS to the Computing Center reception area (ISB 119) and ask for Scott Barber. He will assist you in getting copies of the diskettes that you want. You need one (1) diskette for each set of programs you want to copy (note: these are not pirated, they are what is referred to as "public domain" programs - see previous article). The program diskettes are as follows:

GAMES - runs on TI's and most other MS/DOS machines.

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GRAPHICS DEMO - runs on TI PC's equipped with a 3-plane graphics card.

SAMPLE WORKSTATION DISKETTE - also has several applications programs. Should run on any MS/DOS machine.

KERMIT (with documentation) - This communications program provides limited VT-100 emulation capability. Includes routines for auto-dialing through the TI internal modem or a Hays compatible modem. Should run on any MS/DOS machine.

Charging for Metro Lines Now Goes Both Ways By Tom Newell, NTSU Telecommunications Manager

Due to a recent change, approved by the Public Utilities Commission and implemented by Southwestern Bell Telephone, Metro Line service is now usage sensitive both directions. In other words, calls placed to or from our main metro number (267-3731) are measured and billed on that basis. Therefore, the University incurs a direct charge for service either direction.

Perviously, I had allowed the operators to transfer incoming metro calls to virtually any campus number including the dial-up LAN ports (565-3300 and 3499) after normal working hours. Due to the long length of most computer transactions (30 minutes to several hours) and the fact that the University is now billed for both incoming calls as well as outgoing calls, this practice will cease. Operators will no longer transfer metro calls to the dial-up ports. They will, however, refer callers to the dial-up number at TCOM metro (429-6006) which connects callers to our Local Area Network. If all the TCOM lines are busy they will be advised to call direct (long distance) to our local numbers (817) 565-3300 or 565-3499.

I realize this will inconvenience some students, however, I hope it will provide greater exposure for and utilization of the NTSU/TCOM inter-agency link (429-6006). Also, when the TAGER microwave link is fully operational for data transmission (see article below), yet another method of data communications will be available.

TAGER Microwave Services By Thomas Wm. Madron, Manager of Computing Services

In January, 1985, NTSU became the newest node in the TAGER microwave network. TAGER has provided microwave networking services throughout the D/FW Metroplex for a number of years, allowing area Universities to provide live, televised courses to industry and other institutions.

FEBRUARY, 1985

The first course provided by North Texas State University for TAGER distribution took place early in January, 1985. The course was an introduction to Ada, the new Department of Defense sponsored programming language, taught by Bud Hammons of the Computer Science Department. A TAGER class is interactive in that the recipients can see, hear, and talk back to the instructor.

Although the TAGER microwave receiver and transmitter were initially tied directly to the TAGER classroom/studio, the objective is to interconnect the microwave equipment over the NTSU Cable System which supports the Local Area Network as well as other video activity. Because the Computing Center is responsible for the maintenance and operation of the Cable System, it is also involved in the administration of the TAGER connection.

One byproduct of the TAGER link is that we will be able to obtain data communications services through the microwave system. The current plan is to have TAGER provide a high speed data link between NTSU in Denton and the Texas College of Osteopathic Medicine (TCOM) in Ft. Worth. The data transmission facility will be what is called a T1 link which will operate at a speed of 1.54 mbts, thus providing the two schools with very high capacity data transmission facilities. Voice circuits can also be run over the T1 link.

TAGER opens another window on the Metroplex for NTSU providing us with two-way data and video capabilities. For those interested in computing it will provide NTSU with a data communications capacity previously unavailable.

New HELP Command Available on MUSIC

The command (*GO) mode HELP facility now provides information on common OS ABEND codes. To get help information on an OS ABEND code, enter HELP code from *GO mode, where "code" is the particular OS ABEND code you are interested in. For example, help with the OS ABEND code SOC7 could be attained by typing HELP SOC7.

VS FORTRAN is Here

The VS FORTRAN Compiler and library are now available on MVS. The procs for it are:

FORTVC FORTVCG FORTVCL FORTVCLG FORTVG FORTVL FORTVLG

Some of the features of VS FORTRAN are:

- * CHARACTER data type - provides more flexible and direct control of character variables and arrays.

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- * Structured Programming Aids - the block IF statement, plus the INCLUDE and CONTINUE statements, makes structured code sequences easy to implement.
- * An IBM Extension that allows real variables of length 16.
- * VS FORTRAN lets you write your source programs in either free of fixed format and provides diagnostics that are more informative than before. Manuals are available in the manual racks in the public terminal access areas (5th floor GAB, ISB 110, BCIS 1st floor).

JCL Checking Procedure

If you have written some new JCL for a job, there is an easy way to check it for errors without executing the job (with the associated wait). After the PASSWORD=xxxxx statement in the job card, put a comma and then TYPRUN=SCAN. The procedure will execute immediately and return all syntax errors. This will not check for misplaced statements or the syntax of JCL statements included in catalogued procedures referenced by the job.

An example of a job card with this parameter follows:

```
//LA00TEST JOB (LA00,:05,1),'DOE',PASSWORD=HACKER,TYPRUN=SCAN
```

The Great Battery Fire of '85

By Claudia Lynch, Benchmarks Editor - With Factual Input by Rabon Sanders, Computer Operations Manager

It was awful ... the charred remnants of what was once healthy battery casing. The tragic memory of this appalling disaster will be with me as long as I live.

"Eyewitness" Account

In 1984 there was the great flood (not to be confused with that other one in ancient times*), now barely into '85 we have had a fire besiege the 5th floor GAB. It happened like this:

January 19, 1985

17:15 - Two (2) momentary city power outages, which caused the UPS Module to briefly switch (lights blinked) to the backup batteries and then switch back to city power for its input power source.

Immediately after the first momentary city power disruption, the second shift operator began preliminary proceedings for performing an emergency shut down and power down of the NAS computer systems. (i.e., stopping batch job processing and notifying interactive users of a possible shut down).

- 18:10 - An extended city power outage occurred, which caused the UPS Module to switch to the backup batteries for its input power source.

Immediately after the extended city power outage occurred, the operator began an orderly shut down of the operating systems for both the NAS 6650 and NAS 8040 computer systems.

- 18:25 - Operator completed an orderly shut down of all operating systems for both the NAS 6650 and NAS 8040 computer systems and began an orderly power down of the NAS 6650 and NAS 8040 computer equipment.

- 18:45 - Operator completed an orderly power down of the NAS 6650 and NAS 8040 computers, including the disk subsystems and other equipment.

Even though the third city power outage lasted for approximately forty (40) minutes, the majority of the computer equipment was powered down at least 10 minutes before city power returned.

- 18:50 - City power returned, which caused the UPS Module to automatically switch back to receiving city power as its input power source and begin recharging the backup batteries.

During the forty (40) minute city power outage while the backup batteries were supplying input power for the UPS Module, the battery system did not discharge to its 78 percent low voltage potential. This assumption is based on the fact that the UPS Module is designed to trip out if the batteries should reach their 78 percent low voltage limit, which did not happen until after the battery fire started. When the UPS Module does trip out on a low voltage condition, it has to be manually reset.

- 19:00 - The building fire alarm by the disk room sounded momentarily and then went silent. Immediately after the building fire alarm sounded, the operator noticed an unusual odor, which seemed to be coming from the disk room. After the operator had checked for a possible fire in the disk room and had returned to the operator's console area, the unusual odor had permeated the computer room and a smokey haze was present in the computer room. The operator then notified the NTSU Police dispatcher that the building fire alarm had momentarily sounded and that there was smoke present in the computer room.

- 19:05 - The smoke alarm in the computer room sounded and the operator began an immediate evacuation of the computer room through the hallway leading to the southeast staircase. When the operator opened the door leading into the corridor by the UPS Battery Room, the corridor was

filled with smoke. The operator then retreated down the hallway and evacuated the building via the northeast staircase.

19:10 - The second shift operator phoned the NTSU Police Dispatcher from the ISB to report the possibility of a fire in the UPS Battery Room and that all Computing Center personnel had evacuated the GAB.

*Although, could there be a connection: first by flood, then by fire?

EDITOR'S NOTE: "The operator" referred to above was Lawana Freeman. She is commended for keeping a "level head," and following proper procedures during such a harrowing set of circumstances.

Fishing, Kissing, and Computers By Scott Barber, Academic Computing Staff

I was sitting around trying to think of a good analogy for learning to use computers, and one of the more captivating comparisons was that of one's first kiss. One hears all kinds of hype about it, wonders about it, and builds up all kinds of expectations as to what it is going to be like. When the opportunity to experience it arrives, you're excited, expectant, and nervous. You're thrilled about the prospects of what it will be like for you, and scared to death to find out that you won't be any good at it!

Now, think about teaching it. Imagine someone (your child, a friend, student) coming to you with their partner and telling you that they want you to tell them how to do this thing that everybody is talking about. Where do you start? What would you tell them? One poor soul in desperation once wrote Ann Landers in anticipation of the big event, and wondered if his eyes should be open or closed, and if it was anything like kissing a volleyball!

A similar problem is faced by consultants on the NTSU systems, especially those in the public terminal areas in the BA, GAB, and ISB buildings. Students often go to these consultants with problems such as logging-on to the MUSIC or VAX systems, using the editors, etc. These users, like the anxious volleyball charmer, could easily learn the basics if they were aware that they must spend some time just "doing" it.

Fortunately, there is much help available for those who are first learning how to use the computers at NTSU. The short courses offered twice a semester are opportunities for users to learn about the systems on-line with aid from Computing Center staff. If ongoing assistance is needed, computer assisted instruction (CAI) is available on topics such as the editors and operating

systems on the MUSIC and VAX systems. Terminal area consultants can show users how to get into and use this CAI. Also, the terminal area helpers should assist in locating and using documentation appropriate for various problems.

However, if consultants are considered teachers in the sense that they should "teach" users the systems, then their time gets swallowed up doing work which could be done more efficiently without them. If they can be seen as facilitators who can point the user in a direction he/she can go to solve their particular problems (via documentation, CAI, etc.), then this service becomes invaluable to the Computing Center and to the entire academic community here.

Just Around the Corner!!

By Scott Barber, Academic Computing Staff

The Computing Center survey which has been addressed in recent issues of BENCHMARKS will be distributed soon. Survey instruments will be sent to all faculty and graduate students, as well as selected undergraduates with IDs on MUSIC, MVS, and the VAX systems. (Undergraduate students will be sampled by drawing from the pool of classroom IDs on these systems.) The purposes of this survey are: 1) to identify some of the needs of the academic community in terms of computing resources and services, 2) to evaluate satisfaction with presently provided services, and 3) to provide direction for efforts to make computing resources and services more relevant and effective in the future.

Some of the topics covered include consultation services, short courses, computer assisted instruction (CAI), technical issues (turnaround time, response time), and the dissemination of information on computing at NTSU.

All surveys will be distributed via department. Undergraduate instructors will be supplied with names of selected students along with appropriate numbers of questionnaires. You will be asked to distribute these questionnaires during class time and to collect and return them to the Computing Center. (Return envelopes addressed to the Computing Center will be provided for all respondents.)

The time required for completion should be no longer than about 10 minutes for undergraduates, while 20-25 minutes may be necessary for faculty and graduate students. The questionnaires are designed to be concise, while providing as much information as possible for evaluation and planning efforts. It is hoped that all persons who use these computer systems will consider this an opportunity to air perceptions both complimentary and critical. We encourage your participation in our effort to learn how we can improve our services to meet your needs.

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Backup Schedule for OS/MVS

OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 a.m., and Sunday from Midnight to 3 a.m. A backup of all the operating systems and their contents is done once every two weeks at some low activity period over a weekend.

NAS/8040 Performance Statistics for January

SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
VM/SP3	744	0.00	744.00	24.70	719.30	96.7%
MUSIC	744	21.07	722.93	27.26	695.67	96.2%
MVS/JES2	744	0.00	744.00	28.79	715.21	96.1%
COMPLETEA	744	0.00	744.00	30.66	713.34	95.9%

The AS/8040 CPU and the AS/7360 DASD achieved 100% uptime.
 System Uptime = (Production Hrs Achieved) / (Planned Production Hrs)
 Production Hrs Achieved = (Planned Production) - (Unplanned Maint.)
 Scheduled Operating Hrs = (Planned Maint.) + (Planned Production)
 MUSIC Planned Maintenance Hours include 21.07 hrs system backup.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

CPU, Tape, and Disk Subsystems (NAS)

1. 7350 DASD C.U. Failures	1.25 HOURS
2. Clean/Change Air Filters on CPU, Tape, and DASD Equipment	2.98

TOTAL	4.23 HOURS

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Miscellaneous

1. Undetermined Causes for Systems Restarts	2.84 HOURS
2. VM/SP3 System Tuning/Improvements	0.98
3. MUSIC System Tuning/Improvements	0.65
4. COMPLETA System Tuning/Improvements	0.33
5. Emergency Power down of all Equipment due to City Electrical Power Failure and UPS Battery Fire in GAB Room 513.	22.50

TOTAL	27.30 HOURS

GRAND TOTAL	31.53 HOURS

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*   S U P P O R T       *
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Program Hit Parade

The following programs were used the most frequently during the month of January.

TOP TEN PROGRAMS IN TERMS OF FREQUENCY OF RUNS

<u>Program</u>	<u>Description</u>	<u>Number of Runs</u>
1. IEWL	Linkage Editor	4912
2. IKJEFT01	Password Change	4461
3. PGM=*.DD	Compiled Program	4210
4. SASLPA	SAS	3681
5. SCRIPT	Waterloo Script	3354
6. IEBGENER	IBM Utility	2775
7. PTPCH	Dataset Lister	2370
8. IKFCBL00	VS COBOL Compiler	2034
9. SPSS	SPSS-X	1840
10. IEBPTPCH	IBM List Utility	1551

TOP TEN PROGRAMS IN TERMS OF CPU SECONDS USED

<u>Program</u>	<u>Description</u>	<u>CPU Seconds</u>
1. PGM=*.DD	Compiled Program	123634
2. SASLPA	SAS	45715
3. SPSS	SPSS-X	15819
4. SCRIPT	Waterloo Script	6194
5. IFOX00	System Assembler	5271
6. IKJEFT01	Password Change	4375
7. PTPCH	Dataser Lister	3832
8. IKFCBL00	COBOL Compiler	2405
9. IEWL	Linkage Editor	2327
10. FASTLOAD	MODEL204 Utility	1231

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*   C O M M U N I C A T I O N S   *
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Dialing Up NTSU Computers Over the Telephone

Phone numbers for the local area network are:

300/1200 BAUD: (817) 565 - 3300
 3499

300 BAUD: D/FW METRO 429 - 6006

The numbers that will accept either 300 or 1200 baud communications have an autobaud feature that requires the user to hit the <RETURN> key repeatedly until the receiving modem can determine the appropriate baud rate. The METRO telephone number is for 300 baud communications only. After a communications link has been successfully established, the user will receive the # prompt. At this point, it will be necessary to issue the appropriate CALL command to connect with a computer.

CALL 8040 will connect with the 8040
8050 (on which you can access MUSIC)
8060

CALL 8300 will connect with the 8040 at 300 baud

CALL 3270 will connect with the 8040 through the 3270
3280 protocol converter

CALL A780 will connect with VAX system A
CALL B780 will connect with VAX system B

CALL 2000 will connect with the HP-2000 computer

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*   M U S I C   *
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MUSIC Backup Hours

A message will be sent to all users signed on to MUSIC approximately 10 minutes before backups are begun. It will be in the form * * MUSIC SHUT DOWN AT xxxx AM - SCHEDULED BACKUP *. To find out the backup hours while signed on to MUSIC, enter HELP HOURS. The following backup schedule is currently in effect:

Tuesday	3 a.m. (for about 3 hours)	Weekly backup
Wednesday - Saturday	4 a.m. (for about 2 hours)	Daily backup
Saturday	Midnight (for about 2 hours)	Daily backup

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*  V A X E N  *  
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VAX Backup Schedule

Incremental backups of both VAX systems are performed Monday through Thursday at 5 p.m. Any files that have been created or changed are backed up. Users do not have to log out, but any files that are open at the time of the backup will NOT be backed up.

Full backups of both systems are done every Friday at 5 p.m. Again, users do not have to log out, but any files that are open will NOT be backed up.

A "stand alone" backup of both systems is done on the last working day of the month. During this time, all system software, as well as user files, are backed up. The systems must be taken down for this backup, which will usually not last more than 1/2 hour. All users that are logged on will be warned of the impending backup, and must log out.

NOTE: No backups are taken on the weekends. Requests for restoration of files should be made via MAIL to the username OPERATOR.

Going Places with VAX/VMS Part II: Getting to the Laser Printer by Kimball P. Stickney, VAX System Manager

In this second part of the three part series on different capabilities of the VAX/VMS systems at NTSU, the command is described which allows the user to send a text file to the Hewlett Packard Laser Printer. This is done with the assistance of some new hardware and HASP-PLUS software which send the file over a bisynchronous multileaving protocol serial line to the NAS8040 system, which then sends the file from the user's MVS account to the HP3000 running the MRJE/HASP communications program. The user must have a valid VAX/VMS account, as well as access to a valid MVS account on the 8040. This is necessary because there is currently no support for directly routing data from a VAX to the HP3000 print server.

The simple command LASER on the VAX sets this series of operations in motion. The format of the command is

\$LASER filename.ext [print-train]

where "\$" is the VMS command prompt, "LASER" is the command, and "filename.ext" represents any valid VMS filename in the current directory. The optional parameter "[print-train]" may be specified if you wish to over-ride the default (on the VAX), which is the TN01 train. The others are listed in the summary below. After this command line has been typed, you will be asked:

MVS user ID?

at which point you should enter your MVS user ID. After that, it will ask:

MVS password?

and a similar response is necessary. Currently a number of additional messages will be displayed indicating the status of various programs which are running to put your print job in order. These verbose messages are there to assist VAX operators in resolving any problems that may arise.

It is important to realize that the VAX systems encode text information using the American Standard Code for Information Interchange (ASCII), while the IBM systems (NAS8040 and 6650) use the EBCDIC encoding scheme. Although there is no problem mapping ASCII to EBCDIC for most characters, there are a few that do not map correctly or consistently, depending on the print train specified. In general, square brackets and underlines cause the most problems. Most other characters appear to map correctly, including lower case and special characters. If you want cheap insurance against character mapping problems, simply avoid square brackets and underlines. In the future it may be possible to enhance software to deal with these exceptions more gracefully.

Unfortunately there is no practical way to get at the considerable graphics capabilities of the HP Laser Printer. Users will have to be content with text output from that device, due to the design of the printer and limitations of the software driving it. Look elsewhere in this issue for articles concerning graphics output alternatives. In the meantime, here is a convenient summary of information relevant to the VAX/VMS LASER command:

***** LASER COMMAND *****
The LASER command sends a file to the HP laser printer via the HP3000 MRJE HASP link. Fonts available on the printer are specified via print train codes. Available print trains follow.
CPI=chars per inch. CPL=chars per line. LPP=lines per page.
Rot=rotation in degrees.

Name	CPI	CPL/max	LPP	Rot	Comments	
PN01	13	132/132	66	0		Left and right square brackets and underlines
TN01	10	75/ 77	66	90	Courier font	do not translate consistent across all fonts so BEWARE!
TNS1	13	132/132	66	0		This is an incompatibility of ASCII/EBCDIC translation
PI01	10	90/ 77	66	90	Pica font	
EL01	12	90/ 90	66	0	Elite font	
SC01	12	90/ 90	66	0	Elite cursive font	
HA01	5	49	22	0	Large chars	
DC01	??	90	66	0	Proportional spacing, no underlines or multiple blanks.	

See Computing Center laser printer documentation for additional information. You will need a valid MVS user-ID and password. Examples:

```
$LASER MYFILE.TXT
$LASER LOGIN.COM EL01
```

VAX Graphics Part II: The DISSPLA Software Library by Kimball P. Stickney, VAX System Manager

In the last issue, Part I of this three-part series discussed graphics output using the LA100 dot-matrix printer. Elsewhere in the present issue, articles further describe the particulars of LA100 graphics software support from FORTRAN and C language environments. In this article we discuss a software package purchased by NTSU which allows user-written FORTRAN programs to generate displays on a wide variety of video graphics terminals and pen plotters. Developed by Integrated Software Systems Corporation (ISSCO), the Display Integrated Software System and Plotting Language (DISSPLA, pronounced "DIS-play") is a comprehensive system for computer graphics display. The DISSPLA User's Manual can be consulted in the various public terminal areas, and this article will not endeavor to duplicate the information in that tome. It will suffice to say that a large library of graphic display aids is available to assist in such tasks as three dimensional data presentation, cartography (a data of world coastlines and other maps is part of the system) and page layout.

DISSPLA is essentially a runtime library. Under the VAX/VMS operating system, a runtime library is a collection of functions or subroutines in object code. VMS object libraries generally have the file type "OLB" and are created from object files of the type "OBJ" using the LIBRARY utility. Object files are created by a high-level language or assembler. In the case of the DISSPLA package, a large number of subroutines and functions were written, compiled and made into object libraries. A user then links their object module(s) with this library using the VAX/VMS LINK utility.

There are two separate DISSPLA object libraries which a user program must link to. One contains subroutines to draw

lines, shapes, et cetera. The other contains device drivers to translate output for particular graphics devices. The supported devices, and the subroutines to initialize and send data to them, are described in the DISSPLA User's Guide.

Let's say you have written a graphics program in the file FOO.FOR and wish to link it to the DISSPLA object library. We shall assume that you have consulted the DISSPLA documentation for information regarding which routines to call for your particular application. Now you wish to create an executable program. Here are the DCL (Digital Command Language) commands to do this from VMS:

```
$FORTRAN FOO      !Compiles FOO.FOR into FOO.OBJ
$LINK FOO,SYS$DIS92:DISLIB,SYS$DIS92:INTLIB !Link your program to librar
$RUN FOO          !Linked file FOO.EXE can now be run.
```

This compiles your FORTRAN program, links it with DISSPLA libraries, and runs the resulting executable image. Of course, the system-wide symbol SYS\$DIS92, which points to the actual location of the object library modules, could be locally assigned to some shorter symbol:

```
$ASSIGN SYS$DIS92 XX
$FORTRAN FOO      !Compiles FOO.FOR into FOO.OBJ
$LINK FOO,XX:DISLIB,XX:INTLIB !Link your program to library
$RUN FOO          !Linked file FOO.EXE can now be run.
```

This does the same thing as the previous example, using the ASSIGN command of VMS to create a shorter logical name for the DISSPLA libraries. The ASSIGN command is further described in Volume 2A of the VAX/VMS manuals, available in the public terminal areas.

At the time of this writing it would be difficult to do much with DISSPLA, as there are no DISSPLA graphics output devices available for general use on this campus. The LA100 is not supported by DISSPLA. The graphics capabilities of the PRINTRONIX printers (connected to the Research (Unix) VAX and the TI990 systems) are supported by DISSPLA, but there is no way to get to these printers from the VMS systems. There is also no software on the Unix or TI990 systems which makes use of the PRINTRONIX printers in graphics mode. However, in the near future a variety of graphics terminals and plotters will arrive for the NTSU graphics lab. The remaining problem for DISSPLA users will be that of directing their program output to whatever graphics display devices become available. The solution of this problem will have to be deferred until the Graphics equipment arrives and can be suitably configured.

Part three of this VAX Graphics series, coming in the next issue, will describe the most immediately accessible solution for graphics output. A special software project is nearing completion which grants NTSU a site license for use of a program which will enable a Texas Instruments Professional

Personal Computer to support a useful subset of the REGIS video graphics protocol, which DISSPLA understands. This Graphics Terminal Emulator program (GTERM) requires a TI PC with 256k bytes of memory and the graphics bitmap option, running MS-DOS version 2 or later. GTERM is based on the capability of a DEC VT125 graphics terminal, and supports the VT100 text mode operation as well. Graphics at NTSU will get a healthy start with the availability of this program, making the capabilities of DISSPLA and other packages available to the user community.

Creating UNIX Plot Files From FORTRAN Programs
by Kimball P. Stickney, VAX System Manager

The UNIXPLOT subroutine library contains FORTRAN routines which allow the creation of a Unix device-independent plot file. This plot file, named UNIX.PLT, may then be read by appropriate Unix plot filters for display on a wide variety of devices. The current version is for VAX-11 FORTRAN under the VMS operating system.

The programmer employs subroutine calls similar to those used in the Calcomp subroutine library. The similarity is intended to facilitate the use of existing FORTRAN programs with Unix plot filters.

A plot file is opened with a call to OPENPL. Plotting is done using the PLOT routine, specifying dimensions in inches for X and Y coordinates. The third argument of the PLOT call is always the function code. In keeping with the Calcomp convention, 3 means "move" and 2 means "draw" (also known in the literature as "invisible" and "visible" vectors). To incorporate text into the plot, the TEXT routine is called, with a second argument specifying the character count. When plotting is done, the CLOSEPL routine is called. The following program shows the use of these calls.

C Testing UNIXPLOT code, VAX-11 FORTRAN.

```

      PROGRAM TEST
      call plotst                                !Open plot file UNIX.PLT
C Draw a rectangle.
      call plot(0.0,0.0,3)                       !Arguments are X, Y, function
      call plot(8.0,0.0,2)
      call plot(8.0,10.5,2)
      call plot(0.0,10.5,2)
      call plot(0.0,0.0,2)
      call plot(4.0,5.75,3)
      call text('hi there.',9)                  !Write some text.
      call plotnd                                !Close the file.
      END

```

The reader is encouraged to try this example and make up others in order to gain familiarity with this simple plotting package. In order to compile, link and run the above program, the following commands would be typed (assuming the object

module UNIXPLOT.OBJ is in the SYS\$PUBLIC directory):

```
$FORTRAN TEST    !Compile the above program, TEST.FOR
$LINK TEST,SYS$PUBLIC:UNIXPLOT
$RUN TEST
```

This would result in the creation of the Unix plot file UNIX.PLT which must then be sent through an appropriate plot filter and displayed the

A UNIX Plot Filter for the LA100 Printer
by Kimball P. Stickney, VAX System Manager

The LPLOT program reads a Unix device-independent plot file and creates a plot file for a DEC LA100 or LA50 dot-matrix printer. The use of this program is similar whether operating under the VMS or Unix operating systems. The command "lplot" is followed by a variable number of arguments on the same line.

Under VMS, the command must first be defined for the user. If the executable image is in SYS\$PUBLIC, for instance, the user may define the command in their own LOGIN.COM file as follows:

```
$lplot == "$sys$public:lplot.exe lplot"
```

(Supplying the program name as the first argument is a peculiarity of those VMS installations incorporating the Eunice environment.) Once this command is defined, an input data file is needed. This file may contain only Unix device-independent plot commands as described in the Unix Programmer's Manual, Seventh Edition, under PLOT(3X) and PLOT(5). The reader is referred to these manuals to clarify the manner in which their own C programs may create a Unix plot file. It is particularly important to include the "-lplot" load option in the compiler command line (under Eunice or Unix), or to have a separate module which emulates the plot library functions (under VAX-11 C).

To create an LA100 plot from the Unix plot file unix.plt, the following command may be typed:

```
lplot unix.plt
```

This would require that the user terminal be an LA100, since the output would go immediately to the terminal. If an output file is desired instead, say LA100.DAT, type:

```
lplot unix.plt la100.dat
```

and that file will be created. It can then be sent to an LA100 or similar device.

Another feature available is the ability to change the orientation of the output plot by 90 degrees. This is done by supplying a third argument of 1 if the rotated output is desired.

A sample program, written in C, is provided here. Study this example along with the Unix Programmer's Manual.

```

/*
 * This sample program utilizes functions described in PLOT(3X)
 * and PLOT(5) to test the UNIX plotter package. It creates the
 * device-independent output file "unix.plt" for subsequent
 * input to a Unix plot filter. This example is adapted from a
 * test program written by Donald Byrd.
 */
main () {
    int x, size;
    int xbox, ybox;
    float resolution=200.; /*This determines how big the plot will be

    xbox = 6.0*resolution;
    ybox = 3.0*resolution;
    openpl("unix.plt");
    size = .1*resolution;
/* Draw a box. */
    move(1,1);
    cont(1, ybox);
    cont(xbox, ybox);
    cont(xbox, 1);
    cont(1, 1);
/* Draw diagonal lines. */
    for (x=30; x<(int)(3.*resolution); x+=3*size) {
        line(x, 20, x+size-1, 2*size+20);
        line(x+2*size-1, 2*size+20, x+3*size-1, 20);
        size += .1*resolution;
    }
/* Write some text. */
    move((int)resolution, (int)resolution);
    label("Testing, 123.");
    closepl();
}

```

The program draws a box, some diagonal lines, and some text, using the plot functions move, cont, line and text. The functions openpl and closepl are used to begin and end the plot. You should be able to easily understand these functions by trying this example, modifying it, and creating your own.

```

* * * * *
*
*   H P - 2 0 0 0
*
* * * * *

```

HP-2000 Backup Schedule

Routine system backups are scheduled to be performed at the following times:

8 a.m. Monday through Friday for approximately 20 minutes;
4 p.m. Friday for approximately 1.5 hours.

```

* * * * *
*
*   I N F O R M A T I O N
*   S Y S T E M S
*
* * * * *

```

Office Automation Analyst Hired

Gwen Wells has been hired to fill the position of Office Automation Analyst which was vacated when Paul Buchanan resigned last September. Her first day on the job was Monday, Feb. 11. Gwen is a native of California (San Francisco area), but comes to us from Santa Rosa General Hospital in San Antonio. Her primary duty at Santa Rosa was management of their Information Center, supporting word processing and other office automation requirements for seven hospitals. Gwen will be officed in ISB-241. Come by and get acquainted.

SIMS Project Status Report

With our first on-line registration behind us, work continues toward interfacing this system with other existing systems to allow them to continue to function. Work is also proceeding to implement the remaining portions of the AMS (Admissions) component and the entire FAMS (Financial Aid) component. Work is also underway to prepare the materials required for early registration for Summer and Fall.

HRMIS Project

NTSU has entered into a contractual agreement with Integral Systems, Inc., of Walnut Bend, California, to purchase their software product which we refer to as the "HRMIS" (Human Resources Management Information System) System. The HRMIS system consists of Payroll, Personnel, Position Control, and

Applicant Tracking functions. The HRMIS Implementation Committee" has been named, and is being chaired by Steve Miller, Associate Director of Personnel. Preliminary work is underway to plan and prepare implementation of the system. Current plans call for ISI to deliver their ADABAS / NATURAL / COM-LETE version of the Payroll and Personnel components of the system early in May. We anticipate having to make modifications to the system before implementation. Full implementation is currently scheduled for June, 1986.

NAS/6650 Performance Statistics for January

SYSTEM	SCHEDULED OPERATING HOURS	PLANNED MAINT. HOURS	PLANNED PRODUCTION HOURS	UNPLANNED MAINT. HOURS	PRODUCTION HOURS ACHIEVED	SYSTEM UPTIME
MVS/JES2	744	0.00	744.00	33.42	710.58	95.5%
COMPLETEA	354	0.00	354.00	4.61	349.39	98.7%
ADABASA	744	14.12	729.88	40.81	689.07	94.4%

The AS/6650 CPU and the AS/7360 DASD achieved 100% uptime. ADABASA'S planned maintenance hours includes 14.12 hours for system backup maintenance. Please consult the NAS/8040 Performance Summary for an explanation of cell entries. It can be found under the OPERATIONS section of this newsletter.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes:

CPU, Tape, and Disk Subsystems (NAS)

1. Clean/Change Air Filters on CPU, Tape, and DASD Equipment	1.58 HOURS
--	------------

DASD Subsystem (STC)

1. 8650 DASD Corrective Maintenance	2.00 HOURS
2. 8650 DASD Failure to Power on	6.72
	10.30 HOURS

Miscellaneous

1. Undetermined Causes for System Restarts	2.67 HOURS
2. MVS/JES2 System Tuning/Improvements	0.20
3. ADABASA Program Tuning/Improvements	3.96
4. COMPLETA Program Tuning/Improvements	3.34
5. Emergency Power Down of all Equipment due to City Electrical Power Failure and UPS Battery Fire in GAB Room 513	22.33
	32.50 HOURS
TOTAL	32.50 HOURS
GRAND TOTAL	42.80 HOURS

```

* * * * *
*           *
*   C O M P U T E R   *
*       H U M O R       *
*           *
* * * * *

```

Soviets Introduce KGBjr

By Alexander Beshar - Reprinted with his permission from
InfoWorld, November 12, 1984

How would the Western microcomputer industry react if the Soviets were to market personal computers? Here's one scenario:

It was caviar, sturgeon, and vodka at the KGB hospitality suite at the Hotel Rossia to celebrate the first international computer show held in the Soviet Union (Moscow Comdex '85). The feast also celebrated the launching of the KGB's first venture into the home computer market with the introduction of the KGBjr, a perky little 128K machine (expandable to 512K) with infraRed keyboard.

Other Soviet entries into the personal computer market announced at the gala affair included the Commiepag, a transportable computer (can be lugged from the ministry to the dacha easily), a kneetop Red Shack Model 100 with built-in modem (comes with a one-year subscription to ComradeServe, the Soviet Union's propaganda utility), and a full line of software products -- among them Gulag 1-2-3, a spreadsheet designed for state security purposes, the Cyrillicstar word processing program, and an underground hit at the show, a Soviet version of Flight Simulator with special sectors featuring the Finnish border and the Berlin Wall. A beaming Soviet president Konstantin Chernenko opened the Comdex proceedings, although some Western industry analysts speculated that the president actually might have been a Chernenko clone.

The Keynote speaker from the United States was a high ranking representative from IBM's Entry Systems Division. He welcomed the Soviets into the personal computer marketplace, saying their entry legitimizes the worldwide computer market, and predicted that the new buzzword to arise from the freer exchange of information technologies between East and West would be detenteware.

Reortedly IBM and the Soviet government are negotiating joint production of a sophisticated new 32-bit personal computer to be sold in Eastern Bloc nations. It has been code-named "Kasha."

Also attending Moscow Comdex '85 was an ebullient Jack Tramiel, owner of Atari until he recently sold the company to the KGB for a reported 150 million rubles.

The Atari Creditors Task Force, based in Sunnyvale, California, has asked the U.S. government to introduce an emergency resoulution in the United Nations asking the Soviet Union to assume Atari's accounts payable in good faith.

The press officer at the KGB's Home Computers Division would say nothing except that the KGB planned to remove Alan Alda as company spokesperson and replace him with the Bolshoi Ballet.

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BENCHMARKS is a vital link between the NTSU Computing Center and the users of our facilities. It is important for all users of the computing facilities to maintain a file of these newsletters because they contain materials which will periodically update existing documents as well as information and suggestions on uses of OS/MVS, MUSIC, the VAX 11/780's, the HP-2000, and other resources available to NTSU students and faculty. To facilitate the dispersal of BENCHMARKS, *** FREE *** subscriptions are now available. To receive yours, send the following information to us either by "snail mail" (the post office or campus mail) or electronically, through the MAIL facility on MUSIC.

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